

THREE NEW SPECIES OF *APHELANDRA* (ACANTHACEAE) FROM CENTRAL AMERICA¹

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ABSTRACT

The newly described species are Central American members of the *Aphelandra pulcherrima* complex (Acanthaceae). *Aphelandra panamensis* McDade occurs in cloud forests at middle elevations in central and eastern Panamá. *Aphelandra golfodulcensis* McDade is found in southwestern Costa Rica and adjacent Panamá at low to middle elevations. *Aphelandra leonardii* McDade is known from the lowlands of eastern Panamá and from middle elevations in central Costa Rica.

The *Aphelandra pulcherrima* complex is a morphologically well-defined group of about 35 species found in South and Central America. Features distinguishing these species from other *Aphelandra* include extrafloral nectaries on the floral bracts and a distinctive corolla morphology (Leonard, 1953; McDade, 1980). In the course of revisionary work on the Central American species of this complex (McDade, 1980), three new species belonging to the group were discovered.

***Aphelandra panamensis* McDade, sp. nov.** TYPE: Panama, Panamá, Slopes of Cerro Jefe, past Goofy Lake and large coffee finca, 800 m elev., *McDade 411* (DUKE, holotype; F, MO, isotypes).—FIG. 1.

Frutex 1–6 m altus; foliis ellipticis, 15–18 (22) cm longis, 3–6.5 cm latis. Inflorescentiae spicatae, terminales, sessiles, 1–5, 4–12 cm longae, 0.8–1.2 cm latae; rachis dense pubescens; bractae imbricatae, rhombéo-ovatae, dentatae, 11–15 mm longae, 6–8 mm latae, virides vel sordide aurantiacae, nectaria 5–10 glandibus, glandes singulae 0.5 mm longae, 0.3 mm latae; bracteolae lanceolatae, 6–10 mm longae, 1.5–2.5 mm latae. Calycis lobi lanceolati vel anguste-ovati, 8–12 mm longi, 1.5–5 mm lati; corolla rubra, 5.5–7.0 cm longa, tubo 5 cm longo, labium superum 14–20 mm longum, 6–8 mm latum, lobus medius labi inferiores 18–23 mm longu, 4–7 mm latu; antherae 4–5 mm longae; stigma obliquum et cavum. Fructus immaturi sordide aurantiaci, 16–19 mm longi, 4.5–6.5 mm lati, 5.5–7 mm crassi; seminae atrobrunneae, orbiculares, 4–6 mm in diam., 2–3 mm crassae. Germinatio semihypogaea.

Shrubs or small trees 1–6 m high, sparsely branched; stems terete, younger stems densely pubescent, the trichomes upwardly appressed, white, 0.5–0.75 mm long, older surfaces glabrate. Leaves opposite, narrowly elliptic, 15–18(–22) cm long, 3–6.5 cm wide, apically acuminate to acute, basally attenuate and decurrent on the petiole, marginally entire or undulate, the upper surface of youngest leaves sparsely pubescent, glabrate with age, lower surface moderately pubescent, the trichomes appressed, white, about 0.5 mm long; petioles lacking or to 5 mm long, densely pubescent, the trichomes erect, white, about 0.5 mm long; uppermost leaves subtending inflorescences frequently reduced. Inflorescences terminal,

¹ Assisted by a National Science Foundation grant (DEB77-23003) to D. E. Stone and L. A. McDade. I thank the curators of the following herbaria who made collections available for study; A, F, FSU, GH, MO, NY, US, WIS. Drs. R. L. Wilbur, D. E. Stone, and J. G. Lundberg made useful criticisms on an earlier draft. The assistance of Dr. W. L. Culberson in preparing the Latin descriptions is gratefully acknowledged. Sally Anderson executed the line drawings.

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FIGURE 1. *Aphelandra panamensis* McDade, *McDade 388* (DUKE).—A. Distal portions of flowering and vegetative branches.—B. Floral bract.—C. Bracteal nectaries.—D. Bracteoles.—E. Adaxial sepal.—F. One of abaxial pair of sepals.—G. One of lateral pair of sepals.—H. Gynoecium with oblique stigma, filiform style, and ovary concealed by calyx.

spikes usually solitary (rarely to 5), terete, 4–12 cm long, 0.8–1.2 cm wide, sessile; the rachis densely pubescent, the trichomes erect, white, about 1 mm long; bracts slightly imbricate, narrowly rhombic-ovate, apically attenuate, marginally with 2–3 pairs of teeth (each 1–2 mm long), 11–15 mm long, 6–8 mm wide, green to pale dull orange, sparsely pubescent within, moderately pubescent without, the trichomes appressed, white, about 0.5 mm long, margins ciliate, the trichomes white, 0.25–0.5 mm long, the nectaries medial, composed of several (5–10) individual glands, each about 0.5 mm long and 0.3 mm wide; bracteoles lanceolate, apically acute, 6–10 mm long, 1.5–2.5 mm wide, straw-colored or green, glabrous except keel apically sparsely pubescent, the trichomes erect, white, about 0.75 mm long. Sepals 8–12 mm long, apically acute, green or straw-colored, glabrous except for the sparsely pubescent tip, the trichomes erect, white, about 0.75 mm long, the adaxial segment narrowly ovate, 3–5 mm wide, the abaxial pair lanceolate, 2–3 mm wide, the lateral pair narrowly lanceolate, 1.5–2 mm wide; corolla bright red, 5.5–7.0 cm long, minutely puberulous except tip of lower lip sparsely pubescent, the tube about 5 cm long, 2.5–3 mm in diameter at base, constricted to 1.5 mm above ovary (about 8 mm above base), expanding to 5–7 mm deep at throat, the upper lip erect, elliptic, 14–20 mm long, 6–8 mm wide, bilobed, the lobes triangular, acute, 5–7 mm long, anther pocket poorly developed, the middle lobe of lower lip narrowly elliptic, 18–23 mm long, 4–7 mm wide, acute, tip strongly curled back toward tube, the lateral lobes about 0.5 mm long and 3 mm wide; filaments inserted about 5 mm above base of tube, free portion of each about 5.0 cm long, the anthers 4–5 mm long, extending to within 2–3 mm of tip of upper lip, pollen very pale yellow; stigma not distinctively colored, oblique and appearing hollow, the style filiform, extending 1–2 mm beyond anthers, the ovary glabrous. Fruits globose, terete, glabrous, green tinged with orange when immature, becoming yellow-brown at dehiscence, 16–19 mm long, 4.5–6.5 mm wide, 5.5–7 mm thick; seeds dark brown, irregularly orbicular, slightly flattened, 4–6 mm in diameter, 2–3 mm thick. Seed germination semi-hypogeal.

Aphelandra panamensis is known only from central and eastern Panama in the provinces of Coclé, Colón, Panamá, San Blas and Darién. It occurs in wet cloud forest habitats, predominantly above 600 m elevation, but occasionally lower where local climatic conditions result in high rainfall and frequent fog cover. Individuals of this species are understory shrubs in primary and advanced secondary forest.

Peak flowering occurs in the wet season, from September to December, and fruits mature during the driest months of the year (late December to early March). There is, however, considerable asynchrony among individuals at some sites, notably the Santa Rita Ridge plants in the province of Colón where flowering individuals can be collected during most months.

The combination of toothed bracts with extrafloral nectaries, and the 5.5–7.0 cm long corolla serve to distinguish *A. panamensis* from other species of *Aphelandra*. Specimens of *A. panamensis* have previously been referred to *A. deppeana* (Wasshausen, 1975; Durkee, 1978) from which they may be readily distinguished by several morphological characters including habit, leaf vestiture, corolla length, and fruit size and color. The two species differ markedly in habitat and

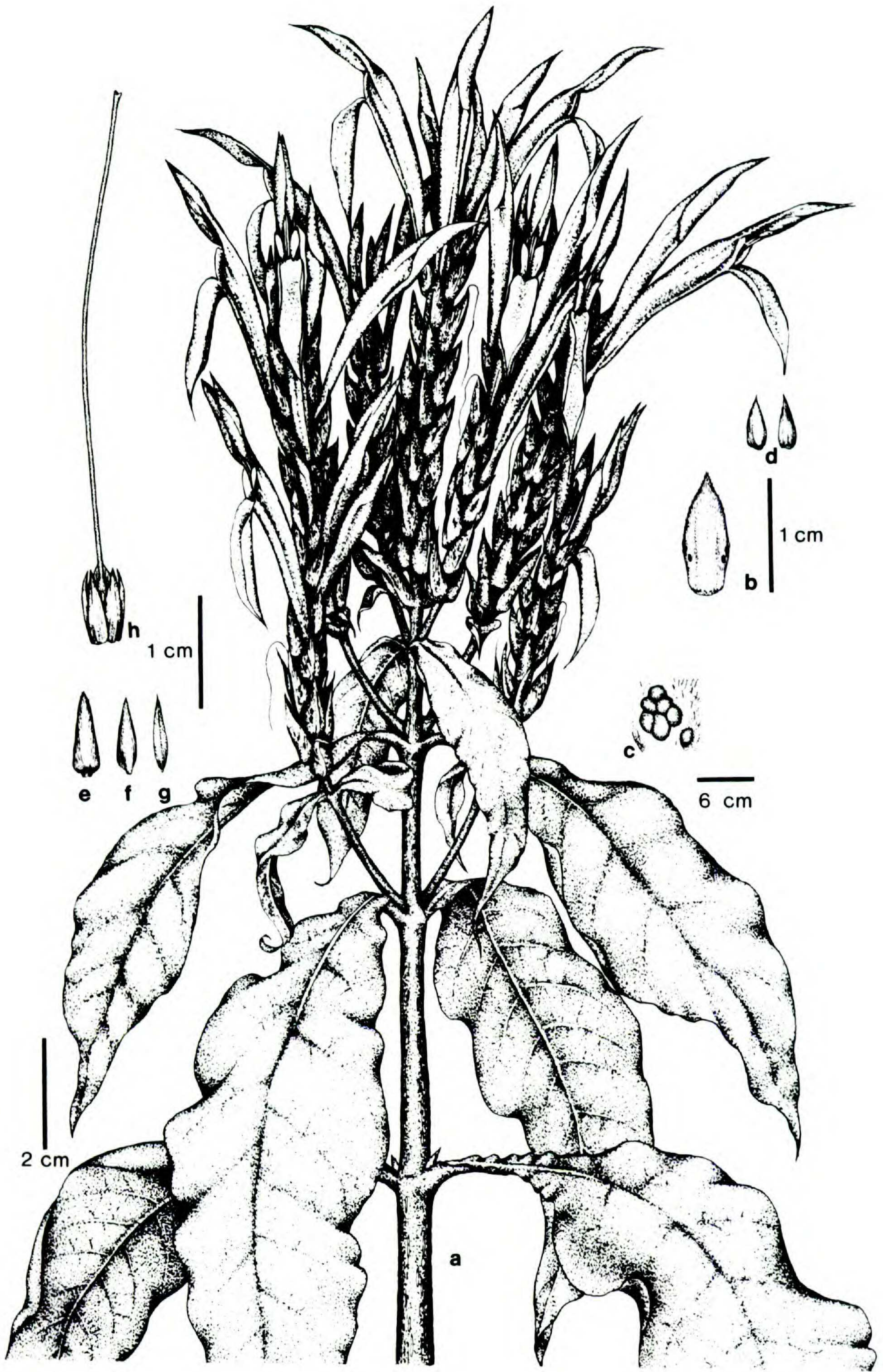
are wholly allopatric. The two-fold difference in corolla length is correlated with pollination by distinct animals. *Aphelandra panamensis* is pollinated by hummingbirds with long, decurved bills (Phaethorninae), while pollinators of *A. deppeana* are species with shorter, straight bills (Trochilinae) (McDade, 1980).

Additional specimens examined: PANAMA, COCLÉ: 8 km N of El Cope de Veraguas, near sawmill, 600–750 m elev., *Berg & Dressler 2770* (US). COLÓN: Ca. 7 mi from Transisthmian Hwy, Santa Rita Ridge, *Wilbur et al. 15078* (DUKE), *McDade 283, 388* (DUKE), *Smith & Smith 3433* (US). DARIÉN: S of El Real on slopes of Cerro Pirre, 500–1,000 m elev., *Foster & Kennedy 1263* (DUKE), *McDade 428* (DUKE). PANAMÁ: Cerro Jefe, about 8 km above Goofy Lake, 800 m elev., *Blum et al. 1834* (FSU), *Foster & Kennedy 1872* (DUKE, US), *Wilbur et al. 11316* (DUKE), *Lewis et al. 282* (DUKE, MO, US). SAN BLAS: Between Río Diablo and Río Acuati near Nargana, *Duke 14887* (US).

***Aphelandra golfodulcensis* McDade, sp. nov.** TYPE: Costa Rica, San José, Vicinity of El General, beside Río Chirripó, *Skutch 2573* (MO, holotype; A, GH, NY, US, isotypes).—FIG. 2.

Frutex 1–6 m altus, foliis ellipticis vel oblanceolatis, 25–30(45) cm longis, 12–15 cm latis. Inflorescentiae spicatae, terminales, numerosae, 3–15 cm longae, 0.75–1 cm latae, pedunculus 0.5–10 cm longus; rachis minute puberula; bractae imbricatae, rhombico-ovatae, integrae, 8–13 mm longae, 4–7 mm latae, virides vel sordide aurantiacae, nectaria 1–7 glandibus, glandes singulae 0.75 mm longae, 0.5 mm latae; bracteolae anguste-ovatae, 4–6.5 mm longae, 2–4 mm latae, virides. Calycis lobi anguste-ovati vel lanceolati, 6–9 mm longi, 1.5–4 mm lati; corolla aurantiaca vel rubra, 6.3–7.3 cm longa, tubo 4.7 cm longo, labium superum 17–19 mm longum, 7–11 mm latum, lobus medius inferiores 22–26 mm longus, 6–9 mm latus; antherae 6–8 mm longae; stigma bilobum. Fructus immaturi virides, 19–23 mm longi, 5.5–7 mm lati, seminae atrobrunneae orbiculares, 4–6 mm in diam., 2.5–3 mm crassae. Germinatio semihypogaea.

Shrubs or small trees 1–6 m high, profusely branching; stems terete, younger stems densely pubescent, becoming moderate to sparse on older surfaces, the trichomes erect to downwardly appressed, white, about 0.75 mm long. Leaves opposite (rarely alternate), elliptic to oblanceolate, 25–30(–45) cm long, 12–15 cm wide, apically acute to acuminate (the tip acute or blunt), basally attenuate and decurrent on petiole, marginally entire or slightly undulate, upper surface essentially glabrous, sparsely pubescent on veins, the trichomes appressed, white, about 0.5 mm long, moderately pubescent below, the trichomes appressed (erect on veins), white, about 0.75 mm long; petioles to 1 cm long, moderately pubescent, the trichomes erect, white, about 0.5 mm long; leaves subtending inflorescences much reduced, 3–6 cm long, 1–2.5 cm wide, pubescence as of cauline leaves. Inflorescences terminal, spikes numerous, terete, 3–15 cm long, 0.75–1 cm wide, arranged in a freely branching paniculate inflorescence; the peduncles 0.5–10 cm long, moderately pubescent, the trichomes erect to downwardly appressed, white, about 0.75 mm long; the rachis minutely puberulous, the trichomes erect, white; bracts imbricate, rhombic-ovate, apically acute, entire, 8–13 mm long, 4–7 mm wide, green to dull brown-orange, glabrous to sparsely papillate within, minutely puberulous without, the trichomes appressed, white, margin ciliolate, the trichomes white, about 0.25 mm long, the nectaries sub-medial, composed of several (1–7) individual glands, each about 0.75 mm long and 0.5 mm wide; bracteoles narrowly ovate, apically attenuate, 4–6.5 mm long, 2–4 mm wide, green, moderately puberulous, the trichomes appressed, white. Sepals 6–9 mm long, apically acute, green, finely striate, minutely puberulous,



the trichomes appressed, white, the adaxial segment narrowly ovate, 3–4 mm wide, the abaxial pair broadly lanceolate, 2–2.5 mm wide, the lateral pair narrowly lanceolate, about 1.5 mm wide; corolla orange to red, 6.3–7.3 cm long, minutely puberulous, the trichomes erect, white, the tube about 4.7 cm long, 2–3 mm in diameter at base, slightly constricted above ovary (6 mm above base), expanding to 6–8 mm deep at throat, the upper lip erect, elliptic, 17–19 mm long, 7–11 mm wide, bilobed, the lobes triangular, acuminate, 6–10 mm long, anther pocket well-developed, the middle lobe of lower lip broadly lanceolate, 22–26 mm long, 6–9 mm wide, acuminate, the lateral lobes 1–3 mm long, 5–7 mm wide; filaments inserted about 15 mm above base of corolla tube, free portion of each about 4.0 cm long, the anthers 6–8 mm long, extending to within 5 mm from tip of upper lip, pollen very pale orange; stigma red, slightly bilobed, the lobes about 0.5 mm long, the style filiform, extending 3–5 mm beyond anthers, the ovary glabrous. Fruits clavate, terete, glabrous, green when immature, turning black brown at dehiscence, 19–23 mm long, 5–8 mm wide, 5.5–7 mm thick. Seeds dark-brown, orbicular, slightly flattened, 4–6 mm in diameter, 2.5–3 mm wide. Seed germination semi-hypogeal.

Aphelandra golfodulcensis is found primarily in the wet lowlands of the Golfo Dulce region of Puntarenas province, Costa Rica. Its range extends into the adjacent Burica Peninsula of Panamá (Chiriquí province), to mid-elevations above the Golfo Dulce region (provinces of Puntarenas and San José), and to the north into Alajuela and Guanacaste provinces where local conditions result in a more mesic and less seasonal climate than is typical of these areas. The plants occur as understory shrubs in primary and secondary forests, especially in edge habitats.

Peak flowering of *Aphelandra golfodulcensis* occurs during the dry season, from late December through March. Fruits mature rapidly and few individuals are still bearing fruits when the wet season begins in this area (mid April to early May).

Plants of this species have previously been referred to *A. sinclairiana* (Leonard, 1938; Wasshausen, 1975) from which they are readily distinguished morphologically. Especially distinctive are bract size, color, and pubescence; fruit color and pubescence; and overall vestiture of the plants. Individuals of *A. sinclairiana* have bright orange bracts 16–20 mm in length, black, pubescent fruits, and erect, pilose pubescence of stems, leaves, bracts and corollas.

Additional specimens examined: COSTA RICA, ALAJUELA: Vicinity of Capulín on Río Grande de Tárcos, 80 m elev., *Standley 40160* (US); Santiago de San Ramón, *Brenes 6625* (A, F, NY). GUANACASTE: El Arenal, *Standley & Valerio 45105* (US). PUNTARENAS: Ca. 10 km SE (toward Panamá) of Palmar N along InterAmerican Hwy, *Burger & Matta-U. 4646* (F, MO, NY), *McDade 378* (DUKE); Esquinas forest, between Río Esquinas and Palmar Sur, *Allen 5775* (F, GH, US); Golfo Dulce and

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FIGURE 2. *Aphelandra golfodulcensis* McDade, *McDade 251* (DUKE).—A. Tip of flowering branch.—B. Floral bract.—C. Bracteal nectaries.—D. Bracteoles.—E. Adaxial sepal.—F. One of abaxial pair of sepals.—G. One of lateral pair of sepals.—H. Gynoecium with bilobed stigma, filiform style, and ovary concealed by calyx.

Río Terraba, *Skutch 5406* (F, US); forests of Santo Domingo de Golfo Dulce, *Tonduz 9969* (NY, US); Rincón de Osa, *Burger & Gentry 8851* (F); Sirena, Corcovado National Park, sea level, *McDade 401* (DUKE); Cañas Gordas, *Pittier 11193* (US); ca. 5 mi from San Vito de Java, Las Cruces Botanical Garden, *McDade 395* (DUKE). SAN JOSÉ: Río Pacuar, vicinity of El General, *Skutch 3941* (MO, NY, US); Río Chirripó del Pacífico between Canaán and Chimiról, *Burger & Liesner 7117* (F, MO). PANAMA, CHIRIQUÍ: Pto. Armuelles, 1 mi W of airport, *Croat 21884* (F, MO, NY); ca. 2 mi S of Pto. Armuelles, *Wilbur et al. 13583* (DUKE, F); San Bartolo Limite near Costa Rican border, 12 mi W of Pto. Armuelles, 400–500 m elev., *Croat 22194* (DUKE, MO).

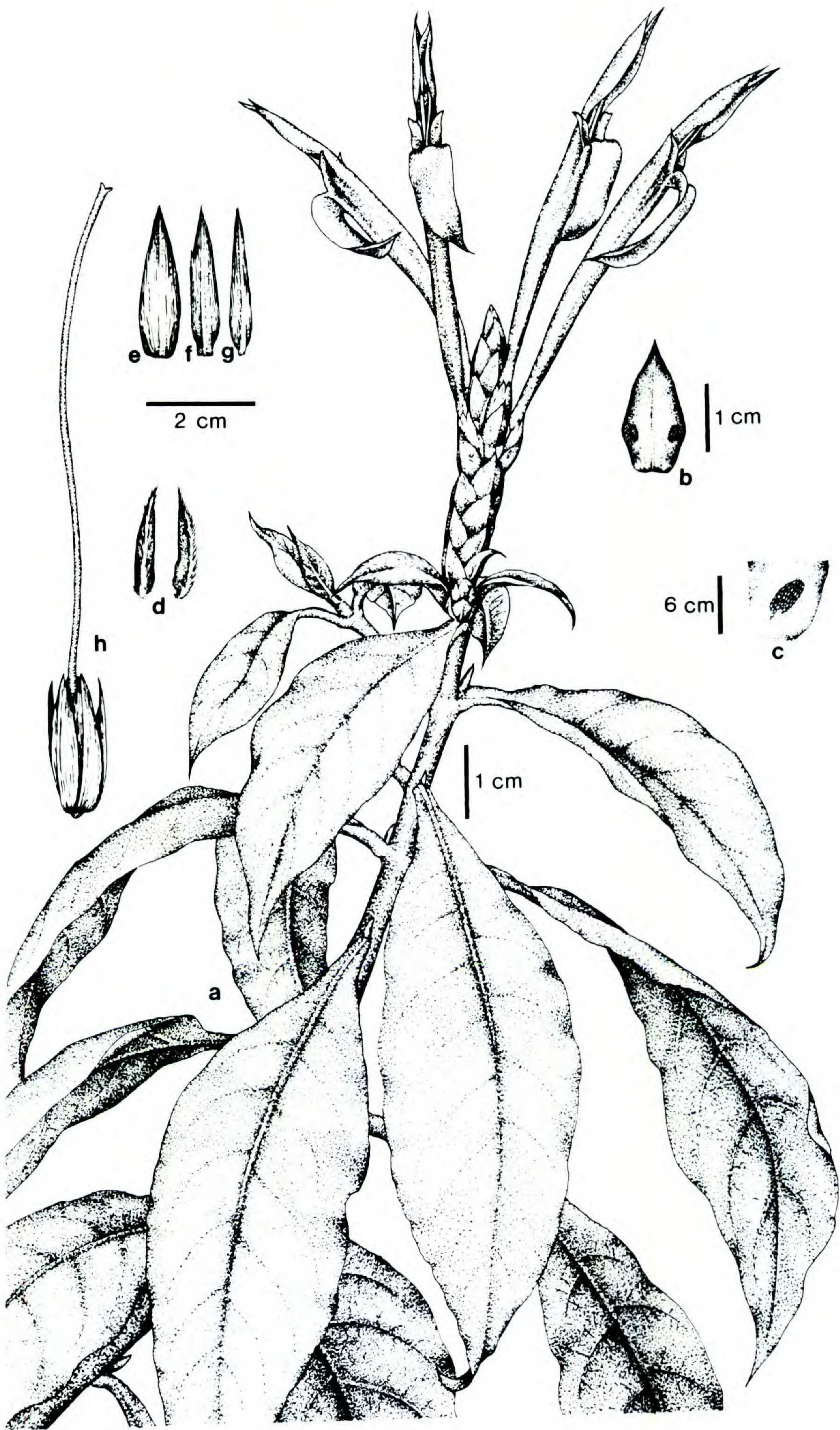
***Aphelandra leonardii* McDade, sp. nov.** TYPE: Panama, Panamá: Majé, about 5 mi up Río Nuevo, a branch of Río Majé, *Foster & Kennedy 1993* (DUKE, holotype; F, MO, isotypes).—FIG. 3.

Frutex 1–5 m altus, foliis oblanceolatis vel ellipticis, 10–20(–30) cm longis, 4–10 cm latis. Inflorescentiae spicatae, terminales, una vel numerosae, sessiles, quadrangulares, 3.5–14 cm longae, 0.8–1 cm latae; rachis sparsim pubescens; bractae vix imbricatae, rhombeo-ovatae, integrae, 7–10 mm longae, 5–7 mm latae, virides vel aurantiacae, nectaria 2–3 mm longa, 1–2 mm lata, glandibus numerosis et minutis munita; bracteolae lanceolatae, 6–9 mm longae, 2–3 mm latae, virides. Calycis lobi anguste-ovati vel lanceolati, 10–12 mm longi, 1.5–5 mm lati, luteo-virides; corolla rubra, 6–7.3 cm longa, tubo 5 cm longo, labium superum 17–21 mm longum, 8–10 mm latum, lobus medius inferiores 21–28 mm longus, 8–10 mm latus; antherae 7–8 mm longae; stigma bilobum. Fructus immaturi virides 17.5–19 mm longi, 5 mm lati, 3.5–4 mm crassi; seminae brunneae, orbiculares, complanatae, 3.5–6.5 mm in diam., 1.5–2 mm crassae. Germinatio epigea.

Shrubs 1–5 m high, profusely branching; younger stems quadrangular, sparsely pubescent, the trichomes upwardly appressed, white, about 0.5 mm long, older stems terete, glabrate. Leaves opposite, obovate to elliptic, 10–20(–30) cm long, 4–10 cm wide, apically acuminate, basally acute to attenuate, marginally entire to slightly undulate, upper surface glabrous, lower surface glabrous to sparsely pubescent except veins sparsely to densely pubescent, the trichomes appressed, white, 0.5–0.75 mm long; petioles 0.3–1.5 cm long (rarely to 3 cm), sparsely pubescent, the trichomes appressed, white, about 0.5 mm long. Inflorescence terminal, spikes solitary to numerous, quadrangular, 3.5–14 cm long, 0.8–1.0 cm wide, sessile or rarely very short pedunculate; rachis sparsely pubescent, except frequently densely pubescent just below insertion point of each bract, the trichomes erect, white, about 0.5 mm long; 2–3 pairs of imbricate, densely pubescent sterile bracts borne below fertile bracts, the trichomes appressed, white, about 0.75 mm long; floral bracts barely imbricate, rhombic-ovate, apically acute, marginally entire, 7–10 mm long, 5–7 mm wide, green to bright orange, glabrous within, sparsely and minutely puberulous without, margin minutely ciliolate, the trichomes white, the nectaries sub-medial, 2–3 mm long and 1–2 mm wide, composed of many minute glands (each ca. 0.1 mm in diameter); bracteoles lanceolate, apically attenuate, 6–9 mm long, 2–3 mm wide, green, finely striate, glabrous except densely pubescent on keel, the trichomes erect, white, about 0.5 mm long.

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FIGURE 3. *Aphelandra leonardii* McDade, *McDade 310* (DUKE).—A. Tip of flowering branch.—B. Floral bract.—C. Bracteal nectary patch.—D. Bracteoles.—E. Adaxial sepal.—F. One of abaxial pair of sepals.—G. One of lateral pair of sepals.—H. Gynoecium with minutely bilobed stigma, filiform style, and ovary concealed by calyx.



Sepals 10–12 mm long, apically acute, yellow-green, finely striate, margins hyaline, essentially glabrous, the adaxial segment narrowly ovate, 3–5 mm wide, the abaxial pair lanceolate, about 3 mm wide, the lateral pair narrowly lanceolate, 1.5–2 mm wide; corolla bright red, 6–7.3 cm long, essentially glabrous, the tube about 5 cm long, 4–5 mm in diameter at base, constricted to 1.5–2 mm above ovary (about 7 mm above base), expanding to 7–9 mm deep at throat, the upper lip erect, elliptic, 17–21 mm long, 8–10 mm wide, bilobed, the lobes triangular, acute and apiculate, 9–10 mm long, anther pocket well-developed, the middle lobe of lower lip narrowly ovate, strongly reflexed to lie along tube at anthesis, 21–28 mm long, 8–10 mm wide, acute, apiculate, the lateral lobes about 1 mm long and 6 mm wide; filaments inserted 8–11 mm from base of tube, free portion of each 4.5–5.3 cm long, the anthers 7–8 mm long, extending to within 4–6 mm from tip of upper lip, pollen yellow; stigma not distinctively colored, slightly bilobed, the lobes about 0.2 mm long, the style filiform, extending 1–6 mm beyond anthers, the ovary glabrous. Fruits oblong, flattened, oval in cross section, glabrous, yellow-green when immature, yellow-brown at dehiscence, 17.5–19 mm long, about 5 mm wide, 3.5–4 mm thick; seeds brown, irregularly orbicular, strongly flattened, 3.5–6.5 mm in diameter, 1.5–2 mm thick. Seed germination epigeal.

This species is known from lowland and premontane forests in eastern Panamá (Colón, Panamá, Darién, and San Blas), and from two localities in Costa Rica. Extensive collecting on the Caribbean slope of Panamá will be required to firmly establish the range of this species. *Aphelandra leonardii* is a shrub of the forest understory and margins. Plants of this species are found in areas with little annual variation in rainfall, but a few collections have been made in seasonally dry regions.

Aphelandra leonardii flowers during the late wet season (September to December), and fruits mature during the driest months of the year (January to April).

Individuals of this species may be distinguished from other Central American members of the *A. pulcherrima* complex by the combination of shrubby habit, sessile, terminal clusters of inflorescences, and small, rhombic-ovate, entire floral bracts. Specimens of this new species were formerly referred to *A. pulcherrima* H.B.K. (Wasshausen, 1975; Durkee, 1978) from which they differ most notably in the morphology of the bracteal nectaries. In *A. pulcherrima* the glands are few and large, whereas in *A. leonardii*, they are numerous, minute, and form a well-defined oblong patch on each side of the bract. The two species also differ in fruit and seed morphology, with terete capsules and sub-globose seeds present in *A. pulcherrima*, and strongly flattened capsules and seeds present in *A. leonardii*. *Aphelandra pulcherrima* is wholly South American and appears to include at least three closely related species (contrast, for instance, the treatments of Leonard, 1953, and Wasshausen, 1975).

While there is little morphological variability among the eastern Panamanian plants of this species, individuals from Costa Rica are rather distinct in several features of vegetative morphology. Costa Rican plants are larger and more diffusely branched, and have leaves that are membranous, narrower (3–5 cm), and sparsely pubescent. With respect to inflorescences and flower characters, however, plants from the two regions are extremely similar. The systematic signifi-

cance of the differences is as yet unclear and will hopefully be clarified by further collections in intervening areas from which the species is yet unknown. While it is possible that collections from the two countries represent distinct species, data from interpopulation crosses (McDade, 1980) support recognition of a single species.

The specific epithet honors E. C. Leonard, in recognition of his many valuable contributions to knowledge of Neotropical Acanthaceae.

Additional specimens examined: COSTA RICA, SAN JOSÉ: Along Río Tarrazú between Frailes and San Andrés, 1,300 m elev., *Burger 4041* (DUKE, F, MO, NY), *McDade 310* (DUKE). PROVINCE unknown: Near Boca Culebra, Pacific coast (Puntarenas?), *Pittier 11988* (US). PANAMA, COLÓN: Forest along Río Indio de Gatun, sea level, *Maxon 4807* (NY, US); Río Providencia, 3 km SE of Achiote, 5–100 m elev., *Gentry & Nee 8652* (MO); Río Guanche, *D'Arcy 9696* (MO). DARIÉN: Slopes of Cerro Pirre, 500–2,500 ft elev., *Duke & Elias E13889* (MO); summit camp between Sasardí and Mortí, 400 m elev., *Duke 10033* (MO); summit camp adjacent Darién-San Blas border along sea level canal route 17, 1,000–1,200 ft elev., *Oliver et al. 3676* (MO, US); between upper Río Membrillo and Camp 7 on construction road to San Blas, *Duke 10865* (NY); Río Tucutí between Tucutí and Río Urogantí, *Duke 5287* (MO); Río Aruza, *Bristan 1248* (MO). PANAMÁ: Along Río Chavaré above Chepo, 50–200 m elev., *Pittier 4723* (US); along InterAmerican Hwy between El Llano and Río Mamóní, *Duke 5631* (MO). SAN BLAS: Along beach east of Pto. Obaldía, *Croat 16890* (US); forest around Pto. Obaldía, *Pittier 4280* (GH, NY, US); mainland opposite Ailigandí from mouth of Ailigandí River, *Lewis et al. 172* (DUKE, MO, NY, US).

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